calcite. The outermost ring is composed mainly of fine grained pyrite and forms a complete circle. Small patches have a paler color and these when examined in polarized reflected light are anisotropic, indicating marcasite rather than pyrite. Cell structure of the rootlet is retained in these sulphides and presumably the outer part was more fibrous and better suited to replacement and preservation than the pulpy interior. Its circular form suggests that replacement of the outer part took place before the rootlet was flattened or crushed. Coarser crystalline pyrite lines the interior almost three-fourths of the way around the circumference which is dotted by two or three small patches of calcite. The galena completely fills the inner core and it may have replaced some of the coarser grained pyrite. It was probably introduced somewhat later than the other minerals for its contact with the pyrite is sharp.

This occurrence records the deposition of galena in north central Illinois in post Lower Pennsylvanian time. The galena was deposited by cold waters, for the adjacent clay minerals have the same optical properties as the areas remote from the galena and are identical to the typical Illinois underclay.

PROCEDURE FOR RESTANDARDIZING CLERICI'S SOLUTION

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In 1929, Dr. Kenneth K. Landes[1] prepared a set of heavy liquids to be used in specific gravity determinations. One year later he rechecked these liquids and found that they did not vary sufficiently to be restandardized. Now, two years after the original preparation, the specific gravities have been found to differ sufficiently from the desired gravities to require restandardization. The change in gravity has in every instance been an increase, due to the evaporation of water from the solutions. In restandardizing the specific gravity set originally prepared by Landes the writer developed a method that not only saves time, but gives results more accurate than are actually required. For practical use no solution should vary in specific gravity more than 0.015 from its intended gravity, that is, it should be between 1.985 and 2.015 for an intended gravity of 2.0. In the following procedure, which was used in restandardizing twenty-two different solutions, the variation

[1] Landes, K. K., Rapid specific gravity determinations with Clerici's solution: *American Mineralogist*, vol. **15**, pp. 159–162, April, 1930.

between the solution obtained and the desired specific gravity was in the third decimal place, thus giving a far greater accuracy than required. By the use of this procedure a second or "check" weighing can be eliminated.

Apparatus Needed

1 Special Westphal balance, with plummet sufficiently heavy to be used in liquids with a specific gravity as high as 4.2.
1 Separatory funnel or dropper (10–12 drops per cubic centimeter is convenient).
1 Graduate cylinder (graduated for $\frac{1}{2}$ cubic centimeter).

Procedure

With the Westphal balance determine the specific gravity of the solution to be restandardized. Then measure the volume of *all* the liquid to be restandardized in the graduated cylinder. Multiply this volume by the specific gravity. The result is the total specific weight of the solution. The information now needed is the volume of distilled water that must be added to the solution of known specific weight in order to dilute it to the desired specific gravity. A simple proportion may be set up with two unknowns, X and Y. That is, if X is the amount of distilled water that is to be added, Y is the total volume of solution that will be obtained. But because Y is not desired the equation may be solved for X only, by the use of simultaneous equations. X will then be the number of cubic centimeters of distilled water that must be added. Frequently this figure is less than one cubic centimeter. Therefore, it is better to calculate in terms of drops rather than in cubic centimeters. This may be done by calibrating a funnel containing a valve or a medicine dropper. Time will be saved if the number of drops to each cubic centimeter range between ten and twelve. The number of drops of distilled water may now be easily calculated. The water should be dropped directly into the solution in the graduated cylinder. Because Clerici's solution is miscible in all proportions in water it can be mixed by either shaking or stirring. The specific gravity of the final solution will be well within the allowable error.

EXAMPLE

Specific gravity of solution = 2.2574
Total volume to be restandardized = 12.5 c.c.
Desired specific gravity of solution = 2.0

$$12.5\ (2.2574)+X=2Y$$
$$12.5\ +X=\ Y$$
$$X=3.22$$

Number of drops of distilled water in 1 c.c. = 11.3
$3.22(11.3)=36.4$
Add to original solution 36 drops of distilled water.

CHECK

By determining again with the Westphal balance
Specific gravity = 2.0015
Error = 2.0015 − 2.0000 = 0.0015
Allowable error = 0.015

Dr. Waldemar T. Schaller of the U. S. Geological Survey delivered three lectures before the students of Columbia University on February 15, 16 and 17. The subjects discussed were: The Potash Deposits of New Mexico and Texas; Borate Deposits in the Southwest; and Crystal Cavities in the New Jersey Zeolite Region.

Dr. Charles H. Richardson, professor of mineralogy and head of the department at Syracuse University for more than twenty-five years, has been appointed director of the Natural Science Museum. He has been relieved of a large part of the teaching duties so as to have time for research and museum work.

The eighth meeting of the Mineralogical Society of Southern California was held in the Lecture Hall of the Pasadena Public Library on Feb. 8, 1932. Mr. David B. Scott, manager of the Natural Soda Products Company at Keeler, Inyo County, was the speaker on this occasion.

PROCEEDINGS OF SOCIETIES

MINERALOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND

MINERALOGICAL SOCIETY, *Tuesday, January 19.* Sir John S. Flett, President, in the chair.

DR. L. J. SPENCER: *A new pallasite from Alice Springs, Central Australia.* A fragment weighing 1084 grams was collected by Dr. Herbert Basedow in 1924 on the north side of the MacDonnell Ranges about ten miles north of Alice Springs, and has been generously presented by him to the British Museum collection of meteor-